



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,269	04/26/2000	Barry M. Nolte	777.344US1	2518
7590	01/06/2005		EXAMINER	
John E. Whitaker Merchant & Gould P.C. P.O. Box 2903 Minneapolis, MN 55402-0903				RUTTEN, JAMES D
			ART UNIT	PAPER NUMBER
			2122	

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/560,269	NOLTE, BARRY M.	
	<b>Examiner</b> J. Derek Ruttent	<b>Art Unit</b> 2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 19 November 2004.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-45 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-45 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 26 April 2000 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date .  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 November 2004 has been entered.
2. Acknowledgement is made of Applicant's amendment dated 19 November 2004, responding to the 16 June 2004 Office action provided in the rejection of claims 1-51, wherein claims 1, 12, 16, 27, 31, and 42 have been amended, claims 46-51 have been canceled, and no new claims have been added. Claims 1-45 remain pending in the application and have been fully considered by the examiner.
3. Applicant's arguments with respect to the rejection of the claims have been considered but are moot in view of the new grounds of rejection.

### ***Drawings***

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the elimination of redundant probes must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3, 10-12, 16-18, 25-27, 31-33, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,314,558 to Angel et al. (hereinafter "Angel") in view of U.S. Patent Number 6,397,380 to Bittner et al. (hereinafter "Bittner") in view of "Compilers: Principles, Techniques, and Tools" by Aho et al. (hereinafter "Aho").

In regard to claim 1, Angel teaches the following: determining a set of probe locations in an application (Column 3, lines 16-20); and inserting probes only at determined probe locations in the application (Column 3, lines 16-20). Angel does not teach eliminating pairs of probe locations that would produce redundant information. Bittner, however, does teach eliminating pairs of redundant calculations in a computer program to aid in program efficiency (Column 1, lines 43-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of determining a set of probe locations in an application and inserting probes only at determined probe locations in the application, as taught by Angel, where the method further includes eliminating pairs of probe locations that would produce redundant information, as taught by Bittner, since this removes redundant, and hence time-consuming calculations.

Angel and Bittner do not expressly disclose or teach eliminating calculations when the application is not being compiled. However, in an analogous environment, Aho teaches that code optimization can be carried out at all levels of a program, from source to target. See page 587, Fig. 10.1. Aho further teaches that the techniques used to analyze and transform a program do not change significantly with the level. See page

589 under "An Organization for an Optimizing Compiler". Aho therefore teaches that code optimizations often performed by an optimizing compiler, can be performed outside of a compiler, e.g. by a user (Fig. 10.1) modifying source code. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Aho's teaching of code optimization with Bittner's redundant calculation elimination with Angel's probe instrumentation. One of ordinary skill would have been motivated to modify source code directly in order to maintain a clean version of a software program that could be effectively compiled using any compiler to effect the benefits of redundant computation elimination.

In regard to Claims 2, 3, 10, 11, 16-18, 25, 26, 31-33, 40, and 41, for specific rejections of these Claims, see the office action mailed on January 26th, 2004.

Claim 12 is a method claim that contains limitations already addressed in the rejections of Claims 1, 2, 3, 10, and 11, and is rejected for the same reason as these Claims.

Claims 27 and 42 are medium and computer arrangement claims that correspond with method Claim 12, and Claims 27 and 42 are rejected for the same reasons as Claim 12, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 12.

8. Claims 4, 6, 19, 21, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Angel, Bittner, and Aho as applied in the above rejection of claim 1, and further in view of U.S. Patent Number 6,332,213 to Grossman et al. (hereinafter "Grossman").

In regard to Claims 4, 6, 19, 21, 34, and 36, for specific rejections of these Claims, see the office action mailed on January 26th, 2004.

9. Claims 5, 7, 13, 14, 20, 22, 28, 29, 35, 37, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Angel, Bittner, Aho, and Grossman, as applied in the above rejection of claims 4, 6, 19, 21, 34, and 36, and further in view of U.S. Patent Number 6,282,701 to Whygodny (hereinafter "Whygodny"), U.S. Patent Number 6,438,512 to Miller (hereinafter "Miller") and U.S. Patent Number 6,374,369 to O'Donnell (hereinafter O'Donnell).

In regard to Claims 5, 7, 20, 22, 35, and 37, for specific rejections of these Claims, see the office action mailed on January 26th, 2004.

In regard to claims 13, 28, and 43, the above rejections of claims 12, 27, and 42 are respectively incorporated. All further limitations have been addressed in the above rejections of claims 4 and 5.

In regard to claims 14, 29, and 44, the above rejections of claims 12, 27, and 42 are respectively incorporated. All further limitations have been addressed in the above rejections of claims 6 and 7.

Art Unit: 2122

10. Claims 8, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Angel, Bittner, and Aho as applied in the above rejection of claims 1, 16, and 31, and further in view of Yellin (U.S. Patent Number 5,761,513).

In regard to Claims 8, 23, and 38, for specific rejections of these Claims, see the office action mailed on January 26th, 2004.

11. Claims 9, 15, 24, 30, 39, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Angel, Bittner, Aho, and Yellin as applied in the above rejection of claim 8, 23, and 38, and further in view of Whygodny, Miller and O'Donnell.

In regard to Claims 9, 24, and 39, for specific rejections of these Claims, see the office action mailed on January 26th, 2004.

In regard to claims 15, 30, and 45, the above rejections of claims 12, 27, and 42 are respectively incorporated. All further limitations have been addressed in the above rejections of claims 8 and 9.

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6230314 B1 to Sweeney et al. discloses a mechanism for eliminating redundant components from objects of a class hierarchy.

Art Unit: 2122

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571) 272-3703. The examiner can normally be reached on M, T, Th, F 6:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr

  
TUAN DAM  
SUPERVISORY PATENT EXAMINER